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EXAMINER	
WATKO, JULIE ANNE	
ART UNIT	**PAPER NUMBER**
2652	8

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/811,606	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	Julie Anne Watko	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *2-14,17 and 19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,15,16,18 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species D, drawn to Fig. 6, in Paper No. 7, filed July 1, 2003, is acknowledged. The traversal is on the ground(s) that "Applicant believes that at least Claims 1, 18 and 20 are allowable and generic". This is not found persuasive because claims 1, 18 and 20 are rejected below. Applicant further traverses on the grounds that "a serious burden cannot be shown". This is not found persuasive because Applicant has failed to provide any evidence that a serious burden cannot be shown. Furthermore, a different field of search need not be shown to show serious burden in an election of species requirement (see MPEP 803 and 808.01 (a)).

The requirement is still deemed proper and is therefore made FINAL.

2. Applicant has identified claims 1, 4, 7, 10 and 13-16 as readable on the elected species, drawn to Fig. 6, with claims 1, 18 and 20 generic to all species. The Examiner has considered this thoroughly and agrees that claims 1, 15-16, 18 and 20 are readable on the elected species, drawn to Fig. 6; however, it is noted by the Examiner that claims 4, 7, 10 and 13-14 are not readable on the elected species, drawn to Fig. 6. See page 20 of the specification, especially lines 9-18, which describe the magnetic domain control layer materials of Fig. 6.

3. Claims 2-14 and 17 are withdrawn from consideration as drawn to non-elected species. Claim 19 is withdrawn from consideration as drawn to a non-elected invention. Claims 1, 15-16, 18 and 20 are hereby treated on the merits.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

5. Applicant cannot rely upon the foreign priority papers to overcome any rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Information Disclosure Statement

6. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

7. Figures 20-22 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (as evidenced by page 29, lines 19-20, "an **already known** MRAM", emphasis added). See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 108, 111, 2003 and 2004. A proposed drawing correction, corrected drawings, or amendment to the specification to

add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

9. The abstract of the disclosure is objected to because it comprises more than a single paragraph. Correction is required. See MPEP § 608.01(b).

10. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1, 15-16 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyauchi et al (US PAP No. 2001/0021089 A1).

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

As recited in claim 1, Miyauchi et al show a magnetoresistive sensor 2 including a substrate 5, a pair of magnetic shield layers (6a-6b) consisting of a lower magnetic shield layer 6a and an upper magnetic shield layer 6b, a magnetoresistive sensor layer 3 disposed between the pair of magnetic shields, an electrode terminal (inherent) for flowing a signal current perpendicular to the plane of the magnetoresistive sensor layer ("sense current is made to flow perpendicularly relative to the main surfaces of the TMR thin film", see ¶ 0060), and magnetic domain control layers 4 for controlling Barkhausen noise of said magnetoresistive sensor layer, wherein said magnetic domain control layers 4 disposed on opposite ends of the magnetoresistive sensor layer in a region from the end surface of a media-opposed surface side of the magnetoresistive sensor layer to the depth position are made of a material having a specific resistance not less than 10 mΩcm (see ¶ 0064, "the hard magnetic -material shows an electric resistivity not lower than 0.5 Ωcm", which falls within the claimed range), and are in contact with at least opposite end surfaces of said magnetoresistive sensor layer 3 in said region (see Fig. 4, for example).

As recited in claim 15, Miyauchi et al show that said magnetic domain control layer 4 is at least partially superimposed (insofar as 4 overlaps part of 3) on the plane of said magnetoresistive sensor layer 3.

As recited in claim 16, Miyauchi et al show that said magnetoresistive sensor layer (3, which is part of 1) is a tunnel magnetoresistive sensor layer ("a magnetoresistive effect element 1

(to be referred to as TMR element 1 hereinafter) showing a tunnel junction type magnetoresistive-effect", see ¶ 0053).

As recited in claim 20, Miyauchi et al show a magnetoresistive sensor 2 comprising a magnetoresistive sensor layer 3; and, a magnetic domain control layer 4 having a specific resistance of not less than 10 mΩcm (see ¶ 0064, "the hard magnetic -material shows an electric resistivity not lower than 0.5 Ωcm", which falls within the claimed range).

13. Claims 1, 16, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Fontana, Jr. et al (US Pat. No. 5729410).

It is noted by the Examiner that the electronically available copies of this reference (US Pat. No. 5729410) are missing two page images. A printout of the electronic text from the EAST USPAT database has been substituted for text page images so as to eliminate the gap in the text of the reference. Paper search files were destroyed and are no longer available to the Examiner; thus, page 6 (of 7 drawing pages) is unavailable. The Examiner apologizes for any inconvenience caused by the missing page.

As recited in claim 1, Fontana, Jr. et al show a magnetoresistive sensor ("MTJ MR head", see ¶ 15) including a substrate (20, for example), a pair of magnetic shield layers (S1 and S2) consisting of a lower magnetic shield layer S1 and an upper magnetic shield layer S2, a magnetoresistive sensor layer (including 116, 118, 120 and 132) disposed between the pair of magnetic shields (see location of 40 in Fig. 3; see also ¶ 9, "The present invention is a MR read head with an MTJ sensor for use in place of the MR sensor 40 in the read/write head 25 of Fig. 3."), an electrode terminal (102, for example) for flowing a signal current I perpendicular to the plane of the magnetoresistive sensor layer (see arrows I in Fig. 5), and magnetic domain control

layers (including 150 and 160 taken together) for controlling Barkhausen noise of said magnetoresistive sensor layer ("assure stable longitudinal biasing", see ¶ 13), wherein said magnetic domain control layers (including 150 and 160 taken together) disposed on opposite ends of the magnetoresistive sensor layer in a region from the end surface of a media-opposed surface side of the magnetoresistive sensor layer to the depth position (see Fig. 5) are made of a material ("150 is a hard magnetic material, such as a **CoPtCr** alloy" and "160, which is preferably alumina (Al_2O_3) or **silica (SiO_2)**", see ¶ 13, emphasis added) having a specific resistance not less than 10 mΩcm (this limitation is presumed inherent, because the materials used in the reference are identical to those used in Applicant's Fig. 6 embodiment, as evidenced by page 20, lines 9-18 of Applicant's instant specification, especially line 13, "CoCrPt/SiO_2"), and are in contact (insofar as 160 contacts the sensor layer) with at least opposite end surfaces of said magnetoresistive sensor layer in said region.

As recited in claim 16, Fontana, Jr. et al show that said magnetoresistive sensor layer is a tunnel magnetoresistive sensor layer ("magnetic tunnel junction (MTJ) device", see ¶ 4).

As recited in claim 18, Fontana, Jr. et al show a magnetic disk apparatus (see Figs. 1-2), comprising a magnetic recording media 16 for recording information, a magnetic read/write head 25 having a write sensor ("WRITE HEAD", see Fig. 3) for recording information onto said magnetic recording media and a read sensor ("MR READ HEAD", see Fig. 3) for detecting information recorded onto said magnetic recording media, a read/write circuit ("signal amplification and processing circuitry", see ¶ 5) for transmitting and receiving a read signal from and a write signal to said read/write head, an actuator 14 for moving said read/write head to a predetermined position on said magnetic recording media, and means ("disk drive electronics

(not shown)", see ¶ 5) for controlling the read/write operation controlling said read/write circuit and actuator, wherein said read head comprises the magnetoresistive sensor according to claim 1 (see teachings above for claim 1).

As recited in claim 20, Fontana, Jr. et al show a magnetoresistive sensor ("MTJ MR head", see ¶ 15) comprising a magnetoresistive sensor layer (including 116, 118, 120 and 132); and, a magnetic domain control layer (including 150 and 160 taken together) having a specific resistance of not less than 10 mΩcm (this limitation is presumed inherent, because the materials used in the reference are identical to those used in Applicant's Fig. 6 embodiment, as taught above for claim 1).

Double Patenting

14. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

15. Claim 18 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 20 of copending Application No. 10419216. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (703) 305-7742. The examiner can normally be reached on Mon-Thurs 7:30-5 and alternate Fri 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Julie Anne Watko
Examiner
Art Unit 2652

August 27, 2003
JAW